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INTERNATIONAL ASSOCIATION OF METEOROLOGY AND ATMOSPHERIC PHYSICS

of the

International Union of Geodesy and Geophysics

IC 6-70

President IAMAP
W. L. GODSON

ARD/AES
4905 Dufferin Street
Downsview, Ontario
CANADA M3H 5T4
Tel: 416 667 4919
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ICCL/IS
9 June 1982

Action	
Info Copies	
~~Watkins~~	✓
Landis	✓
Metz	
Reeves	
AO	
DPB	✓
CSB	✓
SDB	✓
AAB	✓
Comm. Aff.	
Bill Anderson	✓

(distributed 6-24-82)

Secretary General IAMAP
S. RUTTENBERG

NCAR
P.O. Box 3000
Boulder, Co. 80307
U.S.A.
Tel: 303 494 5151
Telex: 45 694

Dr. N. Hinners, Director
Goddard Space Flight Center, NASA
Greenbelt, MD 20771

Dear Dr. Hinners:

I am writing to convey great concern on the part of the community of scientists studying climatic and land surface processes that the older Landsat data face the threat of extinction! This matter was discussed at length at XXIV COSPAR, Ottawa, and has also been a matter of considerable concern within IAMAP. I have discussed this matter with Stan Freden, GSFC; Ichtiaque Rasool has been in touch with Dr. A. Watkins, EROS Data Center. Rather than repeat all the points, with which you are probably familiar, I enclose a copy of a letter of information I sent to the U. S. Climate Program Office, NOAA.

What to do? Would that the deepest concern expressed by scientists for what they regard as high priority could buy even a second's worth of the computer time needed for the task at hand. We cannot help find the needed resources, we can only plead for a re-examination of the totality of national priorities. And, in an effort to be as constructive as our limited resources permit, we will make every effort to mobilize expertise from among experienced user groups to assist in selecting those scenes which contain important information for studies of climate, surface transformations and general habitability questions.

We know that this problem will not be solved easily, but we hope that by bringing it to the attention of responsible officials it has a chance to be considered worthy among all the many other worthy things to do in a period of financial restraint.

Sincerely,

Stanley Ruttenberg

Stanley Ruttenberg

cc: W. L. Godson
S. I. Rasool

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IS/ICL
8 June 1982

Dr. Alan Hecht, Director
U.S. Climate Program Office
NOAA
6010 Executive Blvd
Rockville, MD 20852

Dear Alan,

I am writing to call your attention to the possibility that an irreplaceable data set valuable for the study of climatic variability could be lost imminently. I refer to the Landsat images from July 1972 through 1976, a period during which significant climatic anomalies occurred.

In brief, the older Landsat images are recorded in wide-band video format. They can be read only by a special computer-software combination at GSFC; to the best of our knowledge, for example, they could not be read by the atmospheric video data system at the University of Wisconsin. The GSFC system, we understand from colleagues there, is obsolescent and is rapidly approaching a condition where it is expensive and difficult to maintain. Present budgetary stringencies may well force pre-mature de-commissioning of this system, with the result that any older Landsat data not already reread into modern digital format will be unreadable and therefore lost.

We had hoped that some ten per cent of the images, selected from cloud-free or nearly-cloud-free scenes, could be preserved; this subset could be selected to preserve much of the information needed to study land-surface processes and to document changes in critical regions (e.g., boundaries of the semi-arid areas such as the Sahel). We understand that this was indeed a plan of NASA and the USGS. It now appears that increasing budgetary pressure might force imminent shut-down of such a selective reformatting. The unique Landsat time series would be weakened considerably by loss of the first four-and-a-half-years' of observations, especially since that was a period of great climatic anomalies.

Upon assurance that the GSFC computer-software system would be kept operative for a period, ICSU bodies such as IAMAP, COSPAR and SCOPE would cooperate to mobilize, and probably sponsor out of our own funds, experts to provide guidance on optimum selection of Landsat scenes for reformatting. It is difficult to predict how long it might be necessary to keep the obsolescent computer-software system in operation, but I suspect that if given some priority, and in view of the fact that the system might crash with finality in the near future, the task of selecting the basic data set and reformatting the scenes might take a year or so. I believe that we could gear up an advisory mechanism within the third quarter of this calendar year, given some prior notice sometime this summer.

I am writing, in my IAMAP capacity, to the agencies concerned, NASA and USGS, as well as to others in government, with this same message - the scientists concerned will do their best to provide timely advice if some emergency funding can be provided to preserve at least a minimum set of the Landsat scenes needed for study of climatic and land-surface processes. I also felt that your office should be apprised of the present status, as we understand it, of the possibility of maintaining the Landsat time series.

Sincerely,

Stan Ruttenberg

Stan Ruttenberg

cc: W. L. Godson

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9 June 1982

Dr. Frank Press, President
National Academy of Sciences
2101 Constitution Avenue, NW
Washington, DC 20418

Dear Frank,

I enclose copies of letters to NASA and NOAA, which I have sent as a representative of ICSU interests, concerning the probable imminent loss of the early Landsat observations. We have also been exploring the possibility of addressing similar messages from COSPAR and SCOPE to the US Government through you, as President of the Academy. Perhaps these may have already reached you in the meantime.

It seems to me, after hearing considerable discussion of this particular matter, and placing it in the context of other scientific emergencies we are battling, that protecting the information contained in these observations is a matter of some priority; also this is a situation which could be turned around at modest cost, as these matters go, but such an evaluation should only be a supporting factor in the decision as to what is the scientific priority of saving these observations.

Is there anything that the Academy can do to help bring this matter to the attention of the responsible government levels? Is it wise to try to reach even higher levels?

Sincerely,

Stan Ruttenberg

Stan Ruttenberg

cc: W. L. Godson

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ICL/IS
9 June 1982

Dr. R. E. Hallgren
c/o Gordon Cartwright
33 Avenue du Bude
1202 Geneva, Switzerland

Dick,

Among all the brush fires springing up is the possible loss of early Landsat data by virture of a number of circumstances at GSFC; the final straw is the present budget situation. Upon urging by concerned colleagues, I have taken the steps indicated by the enclosed letters. It is difficult, however, to decide on absolute terms the desirability of asking for special consideration of this project thus risking losing something else which a different group would get excited about.

The period in question, 1972 through 1976, was one in which the great climatic anomalies helped trigger the final setting in place of the WCP. Thus, you might wish to consider bringing the Landsat situation to the attention of the WMO EC and SG. Your own savvy will dictate what action, if any, might be useful.

Regards,

Stan Ruttenberg

cc: W. L. Godson

PARIS, FRANCE 842 5102

TELEX NO IBMPOI 220787F

ATTENTION; S. I. RASOOL

We understand that, because of severe budget constraints at present, the various responsible agencies concerned with Landsat operation and data have come to a decision that will have serious scientific implications: it may not be possible to conserve images acquired by Landsat in the period 1972-76; at best, it may be possible to preserve only a fraction of the cloud-free images. This serious situation arises because of the following factors. The older Landsat data must be reformatted onto modern computer-compatable tape since they are now stored in obsolete video format. This video format can only be read directly by one obsolescent system now in operation at Goddard Space Flight Center. Budget constraints may force the imminent decommissioning of this computer, following which all un-reformatted Landsat data will be irretrievable. If it proves possible to keep the computer system in operation for a time, it would be feasible to preserve a useful portion of that data. At the recent Twenty-Fourth Meeting of COSPAR, Ottawa, Canada, the scientists concerned with the study of land and climate processes expressed their serious concern over the loss of these unique and irreplaceable observations of the recent past state of the atmosphere and the earth's surface. There is growing scientific and public interest concerning the physical changes which are taking place on the earth's surface on the time scale of years and decades, including, for example, the extent of the global desert, the tropical and temperate forest, the polar ice caps, and the turbidity of the coastal waters and river systems. The longest possible time of measurement of such changes is imperative in order to understand their causes and comprehend their potential impact on the habitability of the planet. The Landsat series is the only one of its kind that offers consistent data of these variables on a global scale for as long as ten years, the time interval during which these kinds of changes are begining to be just discernable . If the data from four of these ten years is completely lost, except for the few scenes which have thus far been analyzed for research studies, on our ability to document such changes will be drastically curtailed and scientists will not be able to provide the guidance that society needs, as soon as possible, of potential deterioration of the terrestrial habitat.. The loss of these specific years is particularly dangerous since this was a period of nearly global and nearly catastrophic climatic anomalies, affecting large regions of Africa, South America, and Eurasia. At the same time, we do understand that severe budget constraints may necessitate that only a selected number of images are digitized and preserved. It is likely that a carefully selected subset of the extant Landsat scenes will contain a large proportion of the needed information. Thus, it is imperative to assure two things: first, that the existing computer system can be kept operative for the time needed to assure that a critical subset of the 1972-76 Landsat scenes can be read and reformatted and, two, that a careful selection process be established to assure that the information content of the preserved scenes will be adequate for study of long-term climate and habitability changes. The

scientific bodies of the International Council of Scientific Unions (in particular COSPAR, SCOPE and IAMAP) are willing and ready to organize and sponsor an activity of experts to devote time to the question of optimum selection of available Landsat scenes for preservation. We would do our best to assure that initial guidance could be available by the fourth quarter of this calendar year. Ruttenberg